National Significant Wildland Fire Potential Outlook

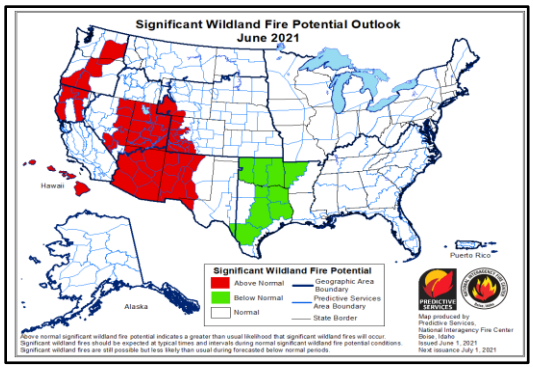
Predictive Services
National Interagency Fire Center

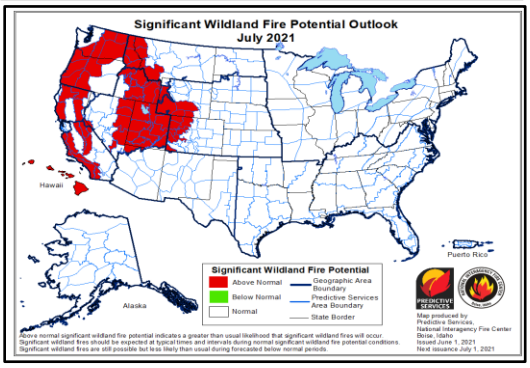
Issued: June 1, 2021
Next Issuance: July 1, 2021

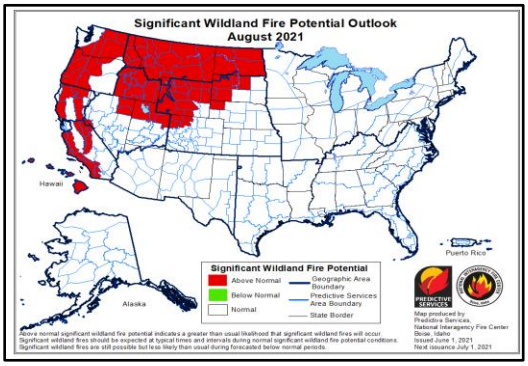
Outlook Period – June 2021 through September 2021

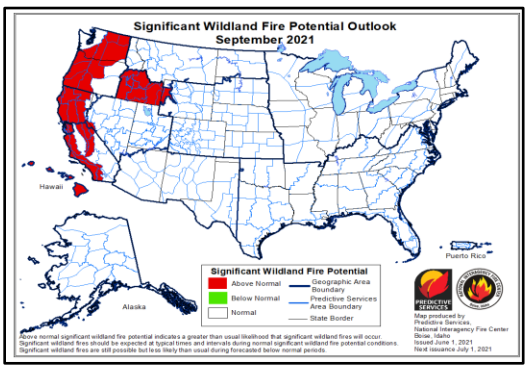
Executive Summary

The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.









The year-to-date acres burned remains well below the 10-year average and significant fire activity was also limited during May. The absence of critical fire weather patterns in areas with very dry fuels helped limit significant fire activity in May. Fuels remain very dry across large swaths of the Southwest, Great Basin, and California with fuel dryness in much of the West two to four weeks ahead of schedule.

Drought expanded and intensified over the West, especially in California. More than 87% of the West is now categorized in drought and over half the West in the highest two categories of drought. Snowpack set new record lows in parts of the West, including the Sierra, in May.

Climate outlooks indicate warmer and drier than normal conditions are likely for much of the High Plains and West through summer continuing and exacerbating drought there. Near normal timing and precipitation is likely with the Southwest Monsoon in July, which should help alleviate drought conditions and significant fire activity, at least temporarily.

Southern Area is likely to have near normal fire potential through the summer with below normal potential across the southern Plains in June. Near normal significant fire potential is also likely for Eastern Area and Alaska through the summer, although elevated periods of activity are possible during short-term drying episodes.

The Southwest is forecast to have above normal significant fire potential through June before the Southwest Monsoon arrives. Above normal significant fire potential will expand northward into the Great Basin and Rocky Mountain Geographic Areas through August with areas closer to the monsoon likely returning to near normal significant fire potential in July and August. Central Oregon into southeast Washington is likely to have above normal significant fire potential beginning in June with portions of the Coast Ranges, Sierra, and Cascades in California increasing to above normal in June and July and continuing through September. West of the Continental Divide in the Northern Rockies is expected to have above normal significant fire potential in July before spreading across the entire geographic area during August, then likely returning to normal in September. Leeside locations of Hawaii are likely to have above normal significant fire potential into September due to heavier fuel loading and forecast warm and dry conditions.

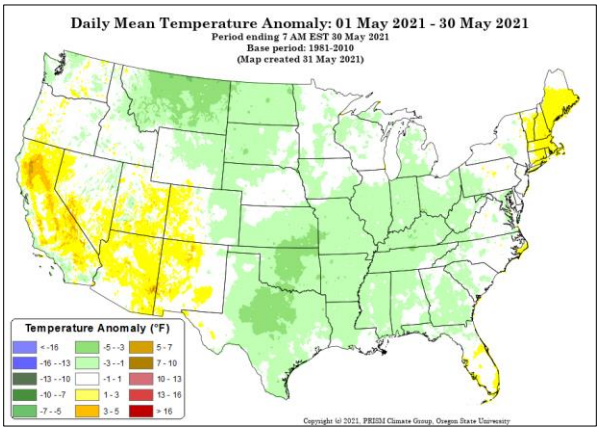
Past Weather and Drought

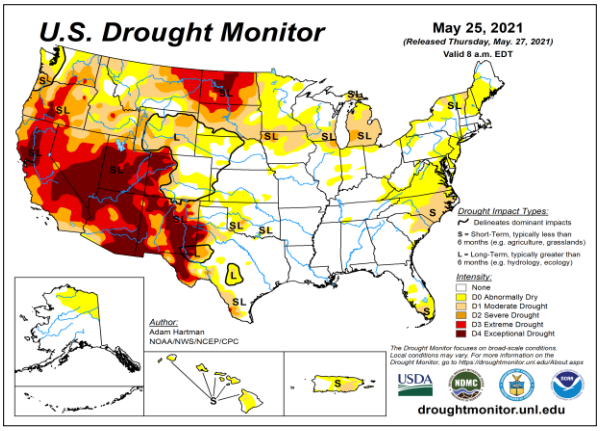
Snowpack across most of the West dropped to well below average values, including some record low values in the Sierra. Above average temperatures and well below average precipitation dwindled an already meager snowpack across the Sierra and much of the West in May.

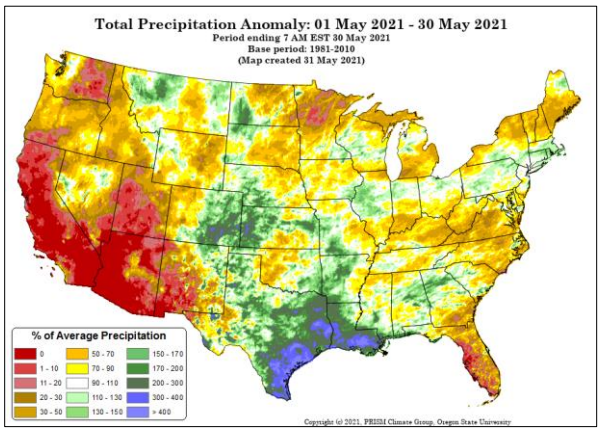
Temperatures were generally near to below normal along and east of the Rockies, except for portions of Florida and the Northeast where rainfall deficits were also observed. Above average rainfall was observed across the central and southern High Plains and eastward across much of Texas into the Lower Mississippi Valley. Dry conditions continued for eastern North Dakota into the Great Lakes, but timely precipitation and near to below normal temperatures helped limit significant fire activity. Near to below normal temperatures were observed across much of Alaska with above average precipitation in the Alaskan Panhandle and portions of eastern Alaska.

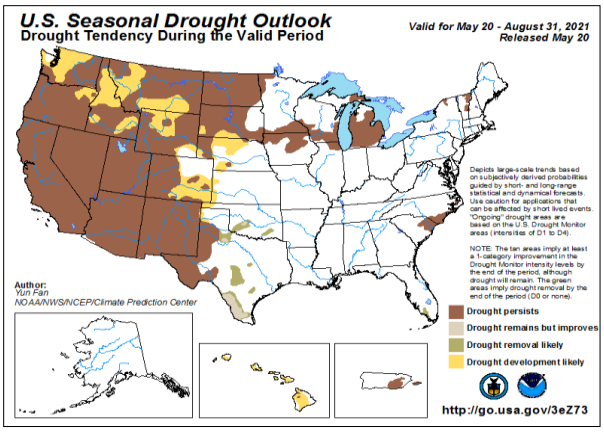
More than 87% of the western region is in drought with over half the region in extreme to exceptional drought. This represents the most expansive and intense drought for the West this century according to the US Drought Monitor and Steve Bowen. Drought continues to intensify in California and parts of the Pacific Northwest while persisting in the Great Basin and Southwest except for a small reduction in northeast New Mexico. Drought expanded in the Great Lakes and Carolinas but improved across much of Texas.

Thunderstorms developed in the Oregon Cascades, northern California, and the Great Basin around mid-May, but large fire activity did not significantly increase. Periodic lightning was also observed in the Sierra and Arizona in May, but no significant activity resulted. The Palisades Fire in southern California burned actively amid a weak marine layer and light winds illustrating some of the potential of dry fuels in California. Well above normal temperatures developed over the West Coast at the end of May, but overall, the lack of critical fire weather patterns and conditions limited significant fire activity.









Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) *(from PRISM Climate Group, Oregon State University).* **Right: U.S. Drought Monitor (top) and Drought Outlook (bottom)** *(from National Drought Mitigation Center and the Climate Prediction Center)*

Weather and Climate Outlooks

ENSO-neutral conditions are present with near-to-below average sea surface temperatures (SSTs) over the east-central to eastern equatorial Pacific Ocean. Other teleconnection patterns, like the Madden-Julian Oscillation, are likely to play bigger roles in shaping the weather and climate patterns during ENSO-neutral conditions. The Climate Predicter Center (CPC) forecasts an 67% chance that ENSO neutral conditions continue through summer. Long-range forecast guidance indicates ENSO neutral conditions are likely into fall with slightly below average SSTs in the equatorial Pacific Ocean. A return to La Niña later this year is possible, but there remains forecast uncertainty with this scenario.

Geographic Area Forecasts

Alaska: Normal fire potential is expected in Alaska for the summer, peaking in late June and early July, then rapidly decreasing with typical end-of-season rains in late July and early August.

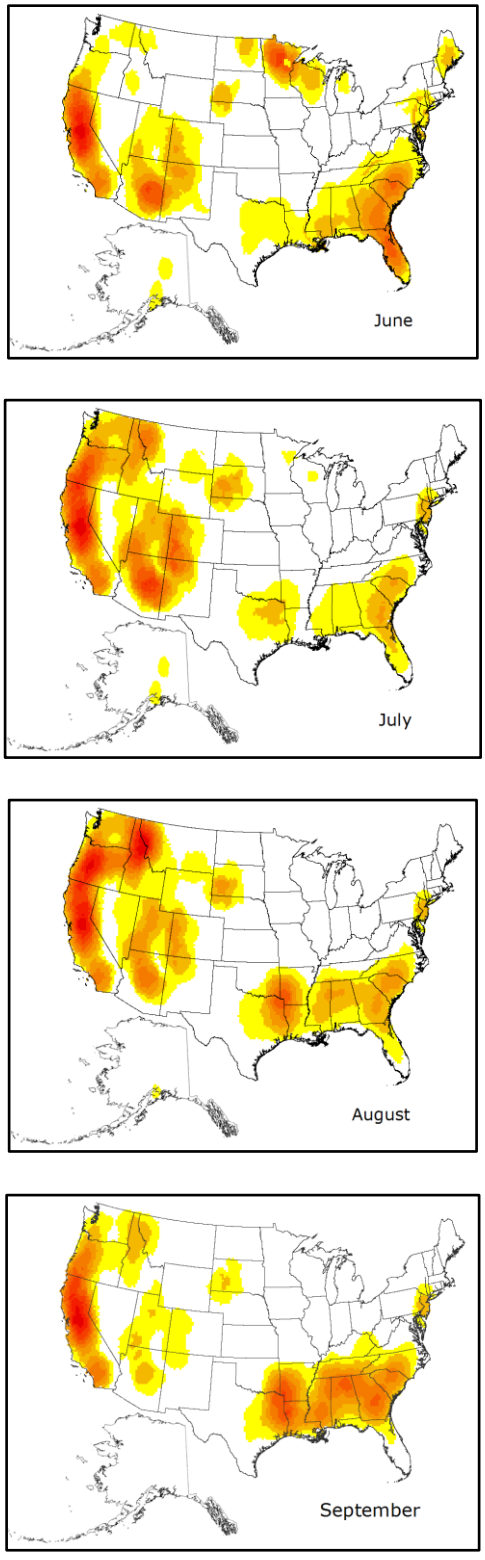
Though the Brooks Range and northeast Interior are categorized as abnormally dry, most of these areas are still frozen and this will not have an impact on fire activity. Other regions are dry, particularly in the Yukon Flats, the lower Matanuska Valley, and the Upper Tanana Valley. This spring has been mild, and a couple of moderate rainfall events and cooler temperatures kept fire activity low for the first weeks of fire season.

Wildfire activity is low to moderate at this time; the main potential is for small, human-caused ignitions that are easily suppressed. June typically brings increased lightning, which will drastically expand the amount of landscape vulnerable to ignitions. Most stations are snow free, and surface fuels are burnable. Most of the deeper duff layers remain too cold and moist to carry fire, but a week of typical June weather will create enough drying to bring these layers into burnable conditions.

For the next few weeks, the Climate Prediction Center calls for temperatures to be warmer in the west and wetter conditions in the south. Summer temperatures are forecast to be above normal statewide, while precipitation is expected to be higher than normal across the west.

Normal conditions are expected across Alaska through the summer. During June, thunderstorm activity will peak around the solstice. Deeper fuels will contribute to wildfire behavior during this period and into July before the seasonal rains of late summer typically bring an end to the fire season in August.

Northwest: Significant fire potential is expected to increase to above normal for portions of southern and central Oregon into southeast Washington during June. Above normal significant fire potential expands to much of the Northwest Geographic Area, except for northwest Washington, by July and continue into September.



Normal fire season progression across the contiguous U.S. and Alaska shown by monthly fire density (number of fires per unit area). Fire size and fire severity cannot be inferred from this analysis. (Based on 1999-2010 FPA Data)

The warm and dry trend continued in May across the region with the only exceptions in western Washington. A portion of the Washington Cascades and a small area in southeastern Oregon received average precipitation, while the rest of the region received less than 50% of normal accumulation. Most of

eastern Washington and southwest Oregon saw less than 10% of average for the month. May temperatures started above average for most of the region, but cool temperatures in the second half of the month resulted in near-normal temperatures for the month. A slow-moving trough lingered over the region for the third week of May, followed by a couple more systems in the final week of the month bringing some much-needed moisture. However, the region was drier than typical for the month.

Snowmelt is underway due to the dry weather and lengthening days. Most of Washington's mountains and Mt. Hood in Oregon still have above normal snowpack, but Oregon's basins now have snow water equivalent between 0% and 48% of seasonal normal with some gains in the last week of May. Drought conditions continued to worsen through the month. All of Oregon is now at least abnormally dry with 72% of the state experiencing at least severe drought conditions, 26% in extreme drought, and 4% now in exceptional drought. Washington has less drought, but 87% of the state is in at least abnormally dry conditions and 21% in severe drought.

The wildfire activity remained light overall with approximately 200 fires and 1,700 acres burned reported. Human-caused starts from debris burning, agricultural burning and recreation fires accounted for most of the incidents. Lightning strikes did not produce significant fire activity. The number of fires and acres burned were less than the previous month. The largest incident burned over 800 acres in south central Oregon (Predictive Service Area (PSA) NW07) in timber and brush. Farther north along the slopes of the Columbia River, a grass fire burned 400 acres, which is not unusual for the location or time of year. Several fires have been caught quickly that were reported as having more than normal intensity for this time of year in central Oregon and Washington. Wind-driven fires in fine fuels and brush were reported as the main problems for containment efforts. Prescribed burning activities have been widespread throughout the geographic area.

The Washington Cascades have managed to retain an above average level of snow at higher elevations. Farther south in Oregon along the Cascade crest, only about 40% of the normal amount of snow is left. The middle elevations in Oregon are drier by comparison. With well below average moisture in May, fuel moistures are trending towards minimum values in some of the PSAs for central Oregon and Washington. All PSAs are depicting below average heavy fuel moisture. Some relief arrived in the third week of the month to improve fuels and smaller diameter dead fuels, but the moisture had minimal effect on the large fuels. Lower elevations in the geographic area have a varied response to the seasonal moisture. Fuel conditions in PSA NW10, NW06, and NW07 appear to be lower and reports from the field about fire behavior in those areas indicate fire season is two to four weeks ahead of schedule.

The driest area in the region is the Columbia Basin. Green up is variable or completed. Brush, salt cedar, and cedars are receptive and abnormally dry. Farther south in the Metolius and Deschutes Basins, green-up is also complete at lower elevations. Native perennials have delayed green up response, and the brush remains stressed. This trend continues down into south-central Oregon where some Type 3 incidents were managed due to higher intensity problems in heavy fuels. The fine fuel production in all areas has been reduced.

Climate Prediction Center outlooks show likely warmer and drier than typical conditions for Oregon and Washington in June, except for an area of "equal chances" for dry, normal, or wet conditions extending from the Olympic Peninsula through western Oregon. Outlooks continue to show warm and dry conditions for July through September. Fire danger is expected to rise above normal for most of the PSAs. Elevated threat for significant fires appears most likely in PSAs NW04, NW06, NW07, and NW10 starting in June and expanding to PSAs NW02, NW03, NW05, NW08, and NW09 in July through September. The elevated threat for significant fires will diminish late in September or October.

Northern California and Hawai'i: For June through August in North Ops, near normal significant fire potential is forecast for the Far East Side PSA (NC08), the mountains near the coast, and lower elevations. Above normal significant fire potential is forecast for most other mid and upper elevation areas. In September, above normal significant fire potential is forecast for most of North Ops except for portions of northeast California. For Hawai'i, lee side areas are forecast to have above normal significant fire potential while the remainder of the islands are likely to have near normal potential. However, locally above normal conditions will occur at times due to above normal loading of dry fuels.

Precipitation in May was below normal, and this continues the trend of below average precipitation for the 2020-2021 rainy season. Temperatures were above average in May. The low elevation grass crop is mostly cured now, and fuel loading among low elevation brush and grasses is lighter than average. The northern high elevation snowpack is now mostly gone statewide, several weeks ahead of usual. The overall outlook for the North Ops region is for drier and warmer than average conditions from June through September. Fire activity is expected to continue to increase in all areas in June as warm summer weather becomes predominant. Most mid and upper elevation areas are expected to have above normal significant fire potential from June through September, except for some coastal and far eastern areas. Lower elevations remain at normal through August because strong downslope wind patterns are unusual during summer months and fuel loading is light. However, significant fire potential is likely to increase in September due to the onset of north-northeast and offshore wind season. The Far Eastside PSA (NC08) is forecast to have near normal significant fire potential due to a light and less continuous fuel bed. Mountain areas near the coast should remain at normal potential because nearby sea surface temperatures (SSTs) are cooler than average and more onshore flow is expected.

SSTs surrounding the Hawai'ian Islands range from slightly warmer than normal in the northwest to slightly cooler than normal near the Big Island. Temperatures throughout the region are expected to reflect these SST trends through September. Dry weather in April and May has led to increasing drought throughout the region, especially on the lee sides of the islands. The four-month outlook calls for below average precipitation. Fuel loading increased due to the heavy rainfall in March. These fuels will dry out and become vulnerable to fire spread, especially on lee sides, and occasionally elsewhere locally during periods of dry weather. Significant fire potential is above normal throughout the islands on the lee sides from June through September. Significant fire potential is normal elsewhere, although some local spots may see periods of above normal conditions during dry spells.

Southern California: The significant fire potential will be near normal across the entire region in June and then become above normal across most of the region July through September. However, the San Joaquin Valley and the deserts will continue to have near normal significant fire potential.

The weather pattern was progressive in May with a series of upper-level troughs and ridges moving into the West Coast from the Pacific Ocean. Temperatures were near to above normal most of the month across interior southern California where there was abundant sunshine, while temperatures were below normal across the coastal areas and coastal valleys where most mornings were overcast from the marine layer. There were no periods of widespread triple digit heat away from the lower and eastern deserts until the last few days of the month, which is quite unusual for May. Like April, almost the entire region received little or no rainfall for the month. Scattered light showers and isolated thunderstorms occurred over the Sierra on a few days as areas of low pressure moved into the Great Basin from the Pacific Northwest. These low-pressure areas also brought patchy light rainfall to the coastal areas from a very deep marine layer. Above normal temperatures across the mountains in both April and May caused the snowpack in the Sierra to completely melt. Winds were predominately onshore (from the south and west) and became strong across the mountains and deserts as troughs moved from the Pacific Northwest into the Great Basin. There were no days with significant offshore winds in May.

Drought across central and southern California continued to worsen in May as warm and dry conditions remained. Much of the area is now under severe to extreme drought. The exceptional drought over the deserts bordering Nevada and Arizona has spread into the southern Sierra. Areas of moderate drought are over San Diego and Imperial Counties, and there are no longer any areas without drought. Both the 1000-hour and 100-hour dead fuel moistures have been breaking records most of the month and the 100-

hour dead fuel moistures were below the 3rd percentile away from coastal areas. The new growth live fuel moisture is continuing to gradually decrease and is now mainly between 80% and 100%. There are some areas where old growth live fuel moisture is between 60% and 80%. This live fuel moisture is well below normal for this time of year.

Expect little change in the weather in June as sea surface temperatures (SSTs) remain below normal over both the Gulf of Alaska and the West Coast. These below normal SSTs will most likely cause a series of troughs to move inland across the Pacific Northwest keeping excessive heat away from the area, but brief periods of above normal temperatures are possible. The marine layer is expected to remain deeper than normal in June likely causing below normal temperatures for the coast and coastal valleys. Temperatures across interior southern California will likely remain a little above normal. As usual, little or no rainfall is expected across much of the area in June. The only exception will continue to be scattered light showers and isolated thunderstorms with any low-pressure areas that drop into the Great Basin from the Pacific Northwest and drizzle across the coastal areas when the marine layer gets exceptionally deep. Little change in SSTs is now anticipated across the Gulf of Alaska and the West Coast through the summer months. Therefore, still expecting the high-pressure area that is usually located near the Four Corners area to be displaced farther to the south. This would cause a later start time to the monsoon and less monsoonal shower and thunderstorm activity than usual for southern California. Temperatures are expected to be near normal during the summer months as high pressure oscillates back and forth over the Desert Southwest.

Northern Rockies: Significant wildland fire potential for the Northern Rockies Geographical Area is expected to be normal in June and again in September. However, during the month of July above normal fire potential is anticipated to develop west of the Continental Divide and expand eastward to include all of the geographic area in August.

The latest US Drought Monitor depicts exceptional drought (D4) over North Dakota. Adjacent to that, eastern Montana is in the extreme drought (D3) category. Farther west of the Continental Divide, there has been a trend towards developing drought resulting from a dry spring, especially in northern Idaho and northwest Montana. While there were two timely precipitation events in the Northern Rockies in May, this short-term weather temporarily abated longer term persistent and historic drought conditions. During the first event over the Mothers' Day holiday, over an inch of rain fell in western North Dakota, but observations taken three days later revealed dry soil moistures, which reflect the anomalously dry sub-soils and a feedback loop with record-warm temperatures perpetuating the cycle of drought. The second event provided beneficial precipitation across the entire area the third week of May following a breakdown of the upper ridge. Of most benefit was central Montana where two to three inches of liquid equivalent fell along the eastern slopes of the Rocky Mountain Front, along with one to two feet of heavy snow in the mountains above 5,000 feet. Currently, there is short-term relief across the Northern Rockies, but long-term drought remains. Spatially, the western and eastern PSAs are the driest, with central Montana sandwiched between with relatively 'normal' conditions overall.

Until the recent precipitation events in May, fuel moistures and fire danger indices were at record lows and highs, respectively, for the season in northeast Montana and northern North Dakota. Fire danger in southwest Montana and northern Idaho has also been somewhat elevated. With the recent cool and moist weather, there has been an overall shift toward less extreme conditions, but according to the Severe Fire Danger Index, ERCs are still running well-above average in the PSAs of North Dakota along the Canadian border. The exposed grasses in northeast Montana and North Dakota are extremely dry and are vertically arranged, standing upright as carryover fuel from last season in many areas where there was not enough snowpack to compress the grasses. This is expected to become a major contributor to fire potential this year. While the drought could limit the amount of new rangeland fuel that is produced, it has been projected that the carryover fuels will contribute significantly to fuel loading. Another factor this year is the lack of fuel moisture in the heavier fuels both in the eastern and western PSAs. For example, during large wildfires in North Dakota, it was noted that the 'bromes' and woody fuels that are usually somewhat resistant to fire spread were burning completely as were stands of hardwood Ash Coulees that ordinarily would not burn. In late April and early May, a fuels and fire behavior advisory was issued to bring about awareness of these unusual conditions. In northern Idaho, prescribed burning projects that were started have paused because

of the dryness and observed fire behavior. While some of the low elevation annual grasses have greened up, many areas in the Northern Rockies have still not come out of dormancy and the growing season index reflects this pattern well, particularly east of the Continental Divide.

Snowpack over the 2020-2021 water year has been near-to-slightly above average and reached its peak in many of the western basins in February but continued to accrue in southern Montana well into April. The recent storm cycle in late May brought a pause to the melting snowpack with freezing temperatures and gave the mountains of northwest Montana another boost with additional snow. The thaw and melt-off cycle will resume near normal pace in the coming weeks as the weather pattern shifts toward something more seasonable.

In North Dakota, acreage burned this calendar year is more than three times the 10-year average to date. There have been half a dozen notable large wildfire incidents east of the Divide since January ranging from 5,000 acres to 15,000 acres with most of them occurring during episodes of dry and windy weather, including coal seam fires that spread rapidly with strong winds. During favorable conditions prescribed burning has been ongoing with many opportunities for multi-day projects on both sides of the Divide.

Although the recent short-term weather delivered some significant relief and encouraged green-up of fuels in the Northern Rockies, there is still a persistent underlying drought concern over the longer term. The monthly and three-month seasonal temperature and precipitation outlooks from NOAA's Climate Prediction Center for June through September suggest a trend of warmer and drier than average conditions developing across the geographic area for the "core" fire season months, particularly along and west of the Continental Divide in Idaho and southwest Montana. One of the most significant factors in these outlooks is the current transition to ENSO neutral and there is somewhat more confidence in the outlooks given that the spring predictability barrier is nearly behind us.

A combination of greening-up fuels and the transient benefits of recent precipitation are expected to mitigate fire potential somewhat in June but in early July, fire potential is anticipated to be elevated above normal for the PSAs west of the Continental Divide based on the most recent outlooks and antecedent conditions from winter and spring.

The projected expansion of drought coverage and magnitude across the Northern Rockies combined with the amount of carryover fuels will bring above normal fire potential to the eastern PSAs as fuels cure out and become available in August. This is somewhat earlier than the climatological fall-period of the bi-modal fire seasons on the Plains due to the drought impacts and feedback of the drier soil moistures along with the outlook for warmer and drier than average conditions this summer.

There has been consistency with the model forecasts for the ENSO outlook in bringing about a secondary La Niña period late this summer or fall. It is reflected in the September outlooks with less of a signal toward warmer and drier. Thus, the expectation is for something closer to normal fire potential in September.

Great Basin: Significant wildfire potential is expected to increase through August from south to north, especially over the eastern half of the Great Basin in the mid to higher elevations due to lower than normal snowpack and significant long-term exceptional drought. Some areas of southern and eastern Nevada into western Utah and the Arizona Strip have carryover fine fuels that will bring above normal potential to lower elevations. The mid to higher elevations of the Sierra Front are also expected to see above normal fire potential by July. Fire potential is expected to decrease in July in the far south as the monsoon develops and in August over at least the southern half of the Great Basin due to anticipated expansion of monsoon moisture. Monsoon moisture may diminish early this year with warmer and drier conditions reemerging keeping above normal fire potential across Idaho, Wyoming, and the Sierra Front into September. Lower confidence exists toward the end of the outlook period.

Temperatures over the last 30 days have been near to just above normal over much of the Great Basin and several degrees above normal over southern Nevada into southern and eastern Utah and the Arizona Strip. Cool and wet storm systems moved across the northern half of the Great Basin the third week in May and brought cooler weather, windy conditions, and widespread precipitation over several days. Some

areas of northeast Nevada, eastern Idaho, and Wyoming received enough precipitation to push the 30-day precipitation to just above normal. However, some areas of western and southern Nevada, the Arizona Strip, far southern Utah, and portions of south-central Idaho received only light amounts of precipitation with some areas remaining very dry. Overall, precipitation remained below normal for May.

The recent active weather pattern has not alleviated the long-term drought. The drought remains extreme to exceptional across much of Nevada, Utah, and the Arizona Strip. The precipitation over the last few months has brought some much-needed moisture to these areas but remains well below normal for the water year. Moderate to severe drought also continues across the rest of the Great Basin. These drought areas are expected to persist into the summer with warm and dry weather forecast to return to much of the Great Basin prior to the arrival of monsoon moisture.

Fuels are in various stages of green-up across the northern half of the Great Basin with green-up completed in the southern areas. Low elevation snowfall that remained on the ground for several days to over a week in late January and February compacted much of the fine fuel carryover from recent years across western and northern Nevada into far northern Utah. This compaction, in combination with low spring precipitation and a less robust new grass crop due to the drought, should lessen the overall fuel loading and large fire potential threat in these lower elevations going into the summer months. We will have to monitor any new fine fuel growth from May rains across Idaho, northeast Nevada, and northern Utah, although the expectation is this growth will be minor. Some exceptions to fine fuel loading will be over parts of eastern and southern Nevada into western Utah that still have carryover fuels since they did not see lower elevation snowfall to compact them. New fine fuel growth in these areas is still very low. Heavy dead fuel moisture is below normal over the southern half of the Great Basin. Due to the low soil moisture in Utah, sagebrush live fuel moisture is expected to peak earlier than normal and at a lower value. Pinyon-Juniper die off has been a major concern across Utah into eastern and southern Nevada due to the long-term drought. These fuel conditions will be a concern for mid to upper elevations across southern and eastern Nevada, Utah, the Arizona Strip, and parts of the Sierra Front heading into fire season.

Overall, fire activity increased during May in the Great Basin. There have been some larger fires driven mostly by wind in parts of Idaho and eastern and southern Nevada in the dormant carryover fuels, which is not unusual for the time of year. The Cherrywood Fire was by far the most notable fire in May, which was larger than normal for the time of year. It was in southern Nevada on the Nevada Test Site and was over 25,000 acres. Full consumption of fuels has been reported on recent fires, which is a testament to the drought conditions.

Forecast warm and dry conditions are likely in June for the western Great Basin with the monsoon beginning to push moisture north into Utah and eastern Nevada by July. At this point, a normal start to the monsoon season is expected, which could bring some relief to southern Utah and the Arizona Strip by early to mid-July. However, an increase in lightning before deeper moisture arrives will be a major concern for southern and eastern Nevada and Utah from June into early July. As the monsoon hopefully becomes more established, moisture is expected to move into the southern half of the region later in July, pushing the increased threat of drier thunderstorms into northern Utah, northern and western Nevada, Idaho, and Wyoming. A possible return of La Niña later in the summer or fall could also bring an earlier end to monsoon moisture, but confidence remains low in this scenario. Western Nevada into western Idaho will likely remain on the drier edge of monsoon moisture and could see more potential dry lightning, along with breezier winds as low-pressure troughs move into the West Coast.

Fire activity in June in the northern Great Basin typically is variable with the area in various stages of green-up. Gusty pre-frontal winds after a warm dry period still may result in increased fire activity in the northern Great Basin due to dry carryover fuels. Fire activity typically increases across Nevada, Utah, and the Arizona Strip in June with a peak of fire activity in the Great Basin in July and August. However, this year we are expecting a significant increase in fire activity in eastern and southern Nevada, Utah, and the Arizona Strip from June into July. Drier and breezier conditions along with potential dry lightning events in July and August across the western and northern Great Basin will also likely increase fire potential over mid and upper elevations of the Sierra Front and across Idaho and Wyoming due to low soil moisture and

lower than average snowpack. Fire potential may remain elevated in the northern and western Great Basin into September, but confidence is lower toward the end of the outlook period.

Great Basin fire potential will remain above normal in the southern Great Basin with above normal conditions expanding farther north into Utah and eastern Nevada through June, especially at higher elevations. Above normal fire potential will cover much of the eastern half of the Great Basin by July and be mainly located over the northern half of the region in August and September. Above normal fire potential is also expected to develop in the mid to higher elevations of the Sierra Front possibly by late June, but more likely into July and August as snow melts and fuel moistures drop to critical levels.

Southwest: Above normal significant fire potential is anticipated across the western two-thirds of the region for June, given the present widespread drought conditions and the overall expected dry and warm early summer weather pattern. Significant fire potential is expected to drop back to normal for most parts of the region by July with the onset of the summer monsoon.

Over the past month a more active weather pattern has been responsible for above average areas of precipitation across the eastern half the region with generally drier conditions across the western half. Parts of central and eastern New Mexico into west Texas have experienced from 110-300% of normal precipitation, especially across the far east and northeastern plains of the geographic area. High temperatures over the past two months have ranged from about 2 - 4°F above normal for most areas west of the Continental Divide with about 1-4°F below average from the New Mexico central mountain chain eastward across the plains.

The recent La Niña has turned neutral, and these conditions are expected to continue through mid-to-late summer. Overall, both temperature and precipitation outlooks are extending the forecast for above normal temperatures and below average precipitation through June. It is late in the spring for major storm systems to impact the Southwest Area, but if any do during the first half of June, they will likely yield an increase in winds likely leading to areas of critical fire weather conditions. Along with these possible periods of strong winds will be backdoor cold fronts with a tendency to drive moisture westward towards the divide region. Concern for wind driven critical fire weather events will continue into June, while lightning-ignited wildfires will also likely increase as June evolves.

Strong surface heating, minimal precipitation, large-scale drought, and low both live and dead fuel moisture values all point to a continuation of above normal significant potential for most areas in June, except across eastern New Mexico and west Texas where enough precipitation has fallen recently. Above normal significant fire potential will expand northward and upward in elevation to include most of the heavier fuels by early to mid-June.

Monsoonal predictions are difficult, but indications that it could be at least an average monsoon bode some promise to a ‘normal’ end to the significant fire season come early to mid-July. However, some model guidance has recently backed off on above average precipitation during the main monsoonal period leading to concern for lingering hot and dry conditions in some portions of the region during July. The monsoon could be more focused over the western half of the region with some potential for abnormally dry conditions from the New Mexico central mountains eastward into Texas as the summer moves on.

Rocky Mountain: Above normal significant fire risk is forecast across western Colorado into southwest Wyoming in June. The above normal risk is anticipated to diminish in mainly the higher elevations of southwest Colorado during July, while expanding across west-northwest Colorado and southwest and south-central Wyoming, and potentially by mid-July across much of the remainder of Wyoming into western South Dakota and northwest Nebraska. For August, above normal significant fire potential is predicted across much of Wyoming into central and western South Dakota and northwest Nebraska with some moderation continuing across southwest Colorado. Expectations in September are for a return to normal fire risk across the Rocky Mountain Area (RMA).

Temperatures were near average in the western RMA during March but expanded to above normal from southwest Colorado through southwest Wyoming. Temperatures to the east have transitioned from warmer

than normal in March to values near average or cooler in April – May. Recent areas of beneficial snow and rain (early to mid-May) over portions of the RMA have helped slow an overall drying trend. The last 60 days have been drier than normal, most notably in western Colorado through southwest Wyoming and to a lesser extent northeast Wyoming through portions of South Dakota. Precipitation was above average across a large portion of eastern Colorado into southeast and central Wyoming and portions of the RMA southern plains. Snowpack was near to above normal across a large portion of the RMA; however, western Colorado has significant deficits, especially in the southwest and in the foothills away from the higher elevations. The US Drought Monitor portrays persisting extreme drought in northwest South Dakota, and extreme to exceptional drought in western Colorado.

Normal significant fire activity in April through May is characterized by occasional wind driven large fires mainly across the Plains, and this fire activity has been near to below normal this year overall. Green-up is progressing across the Plains from south to north so far this spring with more of a stunted green-up predicted across northeast Wyoming into northern South Dakota during early June. Higher elevation RAWS sites are entering their initial green-up phase as of early June, except for southwest Wyoming into western Colorado, especially southwest Colorado where below normal snowpack and earlier than normal spring snow melt occurred leaving dead fuels exposed and reducing green-up. Energy Release Component values coming into the beginning of June are highest in southwest Colorado where some stations are above historical records for this time of year.

Short-term forecasts indicate drying trends for early June as well as warm, dry, and occasionally windy conditions, most notably from western Colorado through southwest Wyoming. CPC long range forecasts through the summer indicate warmer and drier than normal conditions across much of the RMA, especially Wyoming and Colorado. Seasonal summer monsoon moisture, albeit possibly below average, is predicted to impact mainly southern Colorado.

Some beneficial rain and snow occurred over portions of the RMA during early to mid-May to help slow an overall drying trend; however, extreme to exceptional drought remains in place over western Colorado with extreme drought in northwest South Dakota. The active weather pattern in May is predicted to transition into a warmer and drier regime by early June, especially from southwest Wyoming through western Colorado in conjunction with occasionally windy conditions. As a result, expectations in western Colorado through southwest Wyoming are for a stunted and shortened duration of green-up in combination with much drier than average dead fuel moistures. The seasonal spring snow melt period began earlier than average in western Colorado, especially southwest Colorado, during April in combination with an already below normal snowpack, and values remain well below normal as of late May.

For June, above normal significant fire potential is predicted across western Colorado into southwest Wyoming. As monsoon moisture, albeit potentially less than normal, is projected to moderate the fire risk in southwest Colorado over the higher elevations during July. However, expectations are for expanding fire potential across west-northwest Colorado and southwest and south-central Wyoming in July, and by mid-July increasing significant fire potential across much of Wyoming into western South Dakota and northwest Nebraska. For August, above normal significant fire potential is predicted to persist across west-northwest Colorado, much of Wyoming, central to western South Dakota, and northwest Nebraska, while some moderation continues across southwest Colorado. Expectations in September are for a return to normal fire risk across the geographic area.

Eastern Area: The last 30-to-90-day soil moisture and precipitation anomalies were below normal across west and north central Minnesota, the southeastern Great Lakes, portions of northern New England, and the southeastern Mid-Atlantic States towards the end of May. Longer range drought conditions were indicated across northwestern Iowa, the southern Lower Peninsula of Michigan, northeastern Illinois, far southeastern Wisconsin, western Pennsylvania, and north-central New England.

Fuel moisture levels may remain below normal across portions of the northern Great Lakes, northern New England, and the northwestern and southeastern Mid-Atlantic States into the early summer. Near normal fire danger indices and fuel moisture levels were indicated across the rest of the Eastern Area towards the end of May.

Warmer than normal temperatures are forecast over the eastern tier of the Eastern Area in June and September. Near normal temperature trends are expected over the majority of the Eastern Area through the summer season. Wetter than normal trends are expected to across much of the Upper Midwest and southern New England in June. Drier than normal trends are expected over the eastern Great Lakes, northern Illinois and Indiana, as well as the northwestern Mid-Atlantic States in July. Drier than normal trends are likely to shift westward to the western Mississippi Valley in August.

The summer fire season may persist longer than normal across drier portions of the northern tier of the Eastern Area if the forecast above normal precipitation trends do not develop into June.

Near normal fire potential is forecast across the majority of the Eastern Area June into September. However, if the precipitation events do not increase over drier portions of the northern and southeastern tiers of the Eastern Area, periods of above normal fire potential are likely over drier portions of these areas into the early summer season. Drier than normal trends are possible over the western Mississippi Valley later this summer, which may create elevated fire potential.

Southern Area: With neutral-cool bias ENSO sea surface temperatures in the tropical Pacific, a greater month to month variability is expected in the weather pattern for the Southeast during summer. This situation should give rise to greater variability of wet and dry conditions across the South. However, it is likely average to wetter than average conditions will be more common during July with humid summertime showers becoming common in August. Overall, fire potential will likely be near seasonal averages with some areas early on, mostly west of the Mississippi River Valley, having below average significant fire potential.

A pattern of consistent rainfall developed west of the Mississippi River and along the central Gulf Coast with rainfall amounts exceeding five inches for the month across broad areas. Around mid-May, the pattern shifted westward bringing rainfall to Oklahoma and Texas as a strengthening and westward expanding Atlantic high produced drier weather and warmer than average temperatures across eastern and southeast portions of the Southern Area. As of May 23, 1-to-2-inch rainfall departures have developed across mainly eastern portions of the Southern Area with 2-to-3-inch anomalies from eastern Kentucky to Virginia and south Florida. Full leaf-out is helping to mute fuels drying – especially those under canopy and shade. With smaller area exceptions in the Texas Trans Pecos and the border area of southwest Texas, significant drought within the Southern Area is not present.

Like previous month trends, May has seen mostly light fire activity. Longer term drier conditions across central and south Florida is where activity has been more common, but for the Southern Area as a whole, fire occurrence continues to trend at generally light levels.

While 100- and 1000-hour dead fuel moistures have seen some reductions due to the recent warming and drying trend, most values east of the Mississippi River now range from 12-14% for 100-hour fuels and 15-18% for 1000-hour fuels – ranges still near or above seasonal levels. The rain activity, which has been dominant west of the Mississippi River Valley, is keeping fuel moistures very high (19-25% for 100-hour and 22-33% for 1000-hour fuels). For the summer, typical seasonal variations in humidity and shorter duration drier episodes will allow exposed fine fuels to become available should an ignition occur.

Neutral ENSO conditions in the tropical Pacific will likely allow a variety of warm and dry and cool and wet conditions for the Southern Area. The Madden-Julian Oscillation, along with typical fluctuations in the Southern Oscillation Index, will end up driving the production of specific and more variable weather patterns across the Southern Area. Because of this, fire potential will vary broadly across the South with risks early in this forecast period seeing very low potential in western portions of the Southern Area and seasonal potential in the eastern Southern Area. By mid to late summer, fire potential is likely to follow seasonal levels. An expected above average Atlantic tropical storm season could significantly minimize fire potential in some areas while enhancing drying away from landfalling tropical cyclones.

Outlook Objectives

The National Significant Wildland Fire Potential Outlook is intended as a decision support tool for wildland fire managers, providing an assessment of current weather and fuels conditions and how these will evolve in the next four months. The objective is to assist fire managers in making proactive decisions that will improve protection of life, property, and natural resources, increase fire fighter safety and effectiveness, and reduce firefighting costs.

For questions about this outlook, please contact the National Interagency Fire Center at (208) 387-5050 or contact your local Geographic Area Predictive Services unit.

Note: Additional Geographic Area assessments may be available at the specific GACC websites. The GACC websites can also be accessed through the NICC webpage at: **http://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm**